Notebook Series -- Notebooks by Edison and Other Experimenters
Disc Record Book No. 2
Notebook, N-16-01-18

This notebook was used by Edison in January 1916 for notes on experiments to improve the composition of disc record blanks and the varnish surfaces applied during the transfer process. The experiments involve the use of different ingredients in various proportions, as well as variations in the dipping and baking processes. Also included is a list of "soft solids" for use in record blanks, with the observation that it should take "at least 100 mins [for] 3cc to evaporate from hot plate." The front cover is labeled "1916 #2 Disc Expmts 1-18-16." The pages are unnumbered. Only 10 pages have been used.

1—18—16

Present Time of Dipping in solution is fairly satisfactory

Dipping in + out quickly 480 Blanks
60% OK after Transfer

Dipping and holding in varnish 6 minutes —
64%

Not enough diference to bother with

Thin Varnish 19 - Reg blanks
Reg Var 30 cc

Very rough surfaces and load run auto —
45 cc is minimum should be 50 to 55 am testing

Putting 10 Bird cages aside to dry 10 Hours no apparant gain over present method —

10% Amyl acetate in rsq varnish seems to improve surface & RO ulg ~~but~~ 100% Trans + Pnt but noticed one of transfer veneer plates cracked in 24 hours
Phenomenon about this varnish is that its yet black from the Negroson opaque to transmitted light while Reg is red & transparent
See E4 - No 1 Book.

Moore found 3 old 4 to 1 Condensite blanks, Printed on tracked moulds Very good surface. No RO greater than 5 — 5 surfaces marked fine 1 marked good.

If extra phenol is left out + 8 6/4
used 5% Naphthalene used
the Veneer raises from plates
bad in Oven Whereas 7 6/4
in duplicate does not raise up
In both experiments the plates

Are very even ? is this due
to Napthalene or no excess phenol

Unbaked dipped blanks pressed
in Transfer presses + then printed on
tracked moulds. gave in 18 surfaces

16 Rough + 2 fair
9 RO Less than 4

Duplicate Expmt but dipped blanks
Baked.
gave with 8 surfaces no RO –
Surfaces not recorded being to rough

No 1 Copal acts like Sandarac
33% of C to the resin used
Veneers left the plates

Transfers & Prints
100% –

Transfers 100%

Prints 6 5 OK 1 Cracked

1-18-16

5 wood 2 Chalk 1 Lac is a much better blank than regular now being used, get 100% Transfers & Prints

27 surfaces with some bad tracked moulds got 17 RO better than 4 4 fine surfaces

A Duplicate of 5 wood 2 Chlk 1 Lac 14 surfaces gave for RO 8 lower 57% than 4 + 11 fine surfaces — 80% The bad tracked mould not used in this test like the above test,

This blank is very good Weld good Edges fair Only trouble is RO should be reduced

With 4 wood 3 Chalk 1 Lac 13 surfaces gives for RO 7 better than 4 46% 9 fine – 70% Edges crumbly Welds good Thick blank may do better when thinner probably want increase of Lac as % Chalk goes up

Specially picked wrinkled
Var plates picked show RO
due to them but as blank
gets harder they are
evidently pressed out,
Wants hard non springy
blank to stop this evil

Shellac as a dipping
Varnish welds fair but not
good enough

Oldground blank no matter
how used roughens surface
rques worse run outs

2 Wood 5 Chalk 1 Lac
12 surfaces gives 10 RO better than 4 — 8 better than 5
11 fine surfaces —
Edges crumble out Blank not giving it makes poor prints
Crack Var in transfer
Why — think blank dont contract

1 Wood 6 Chalk all transform
Crack Var — face weld pulls off 1/32 = Wants more shellac

5 Wood 2 Charcoal 1 Lac
13 surfaces RO 5 better than 4 surfaces no fine —
Very light blank — quite thick
Welds very good & dipped —
100% T+Pt 1/4 of whole number of blanks broken out.

4 Wood 3 charcoal 1 Lac
6 surfaces — 4 better than 5 for RO
fine surf 5 Transfer 11 — 7 cracked

3 Wood 4 Charcoal 1 Lac
12 surfaces 6 no RO 3 more better
for RO than 4 — 6 fine surfaces
Edges mealy - Welds good, $\frac{1}{32}$
blank separates 3/8 thick
Too dry Evidently warmth of flames
12 Transfd 5 crkd Prints 4 ckd
2 chipped Corners

If 1/3 of the Resin is replaced
by gum Dammar, The Veneer
acts even worse than Creosot
Varnish - Cracked in hundreds
of pieces all free from the
plate — Contraction of Dammar
must be very great,
Whereas Copal comes off entirely
not cracked,

This shows no solid should be
used which has big Contraction
No 1 Copal probably has
just Enough Contraction to free it
from plate but no Enough to
Crack Varnish

Canada Balsam has been on hot plate for 12 hours + practically all of it remains.
Eugenol been on 8 hours - 1/3rd gone
Monochlorohydrin 8½ " 1/2 gone

I think the only safe things to put in is soft solids but preferable something that takes at least 100 mins 3 cc to evaporate from hot plate. if dal in alcohol such as

Cedar Wood oil -
Iso Eugenol
Eugenol.
Phenylhydrazin
Xylidin
Rosin -
Monochlorohydrin
Canada Balsam

Reg Var having 16% free phenol in resin
+6 added using 8 6/4
Equals -
8. 2.77 free phenol 1% 6/4
When only free phenol of resin is used + none added + use 8% 6/4

8%	2 free phenol	To 1% 6/4
7	2.28 "	"
6	2.66 "	"

Wear tests should be made on this
8% lifts on plates